

Department of Health and Human Development
Montana State University-Bozeman
Syllabus: HDFN 526: Nutrition for Fitness and Performance
Fall 2001

Instructor: Patti Steinmuller, MS, RD, LN

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CLASS HRS: asynchronous online course

CREDITS: 3 graduate credits

COURSE DESCRIPTION: Introductory sports and fitness nutrition course. Focus on nutrition strategies designed to meet the energy and nutrient demands for physical activity, exercise, and athletic performance. Examine the nutritional needs of endurance, strength, team sport, and low body weight athletes. Discuss strategies to prevent disordered eating behaviors. Use designated criteria and online National Library of Medicine databases (PubMed) to evaluate nutrition information and claims for dietary supplements. Extensive use of Internet resources is required.

TARGET POPULATION: Working professionals in education, sports, health and wellness, such as: high school and middle school teachers and coaches, registered dietitians, athletic trainers, exercise trainers and consultants, strength and conditioning consultants, physical therapists, and wellness professionals.

PREREQUISITE: A Bachelor's degree, one semester of college biology, human physiology, or exercise physiology (BIOL 211, HDPE 322, or equivalent), one semester of college chemistry or biochemistry (BCHM 340 or equivalent), For teachers, education methods courses in health and/or health enhancement (EDCI 306, EDCI 307, EDCI 364 or equivalent). A college course in nutrition (HDFN 221 or equivalent) is desirable. For teachers, a professional teaching certificate, and one year of teaching experience.

REQUIRED TEXT: McArdle WD, Katch FI, and Katch VL. Sports & Exercise Nutrition, Lippincott Williams & Wilkins, 1999.

OTHER REQUIRED MATERIALS

1. Steinmuller, P. Supplement: Nutrition for Fitness and Performance, MSU University Printing, 2001
2. Diet Analysis Plus version 5.0 software, ESHA, West/Wadsworth, International Thomson Publishing, 2000. Note: Order the software (Win or Mac) that is appropriate for your computer.
3. Adobe Acrobat Reader. Download ("Get Acrobat Reader") at Adobe.com:
[<http://www.adobe.com>].

RESOURCES

- Various Internet resources including the American Dietetic Association, the American College of Sports Medicine, Gatorade Sports Science Institute, PubMed, SportScience.org.
- MSU Libraries Proxy Server: Register at the MSU Library homepage: <http://www.lib.montana.edu>.

COURSE OBJECTIVES

1. Examine the synergistic roles of nutrition and physical activity that influence health, fitness, and athletic performance. Discuss interactions between nutrition and physical activity.
2. Discuss exercise metabolism and the factors that determine the storage, availability, use, and repletion of fuels required for energy production and power output in physical activity and sport.
3. Demonstrate the ability to use nutritional strategies to meet the demands of physical activity, sport performance, and to speed recovery from athletic training.
4. Develop nutrition profiles (goals for meeting energy, fluid, and nutrient needs) for physically active people.
5. Use nutrition goals for a physically active person and nutrition analysis software to plan meals and snacks for consumption before, during, and in recovery from physical activity.
6. Use recommended nutrition guidelines for health, fitness, and physical activity in combination with nutrition analysis software to develop a personal fitness menu.
7. Use Internet and library resources to access accurate, reliable sport and fitness nutrition information. Apply that information to course discussions and assignments.
8. Use evidence-based decision-making to evaluate dietary supplement claims, nutrition advertising, and nutrition information in the media.

9. Use the PubMed database of the National Library of Medicine to access scientific literature that pertains to the content of the course, including dietary supplement evaluation.

10. Discuss current topics such as energy balance and energy deficit, weight management, body composition, dietary supplement use, appropriate use of sports drinks, protein needs for physical activity, female athlete triad, and strategies to prevent disordered eating. Explore scientific evidence, administrative policies, government guidelines, legal issues, and controversies related to these topics.

11. Discuss the goals of the Dietary Reference Intakes (DRIs) and relevance to health enhancement among physically active people.

12. Propose ways to integrate nutrition education for health, fitness, and physical performance into school curricula, coaching, and/or client educational situations.

WEEKLY TOPICS

Week Topic

1 Human energy metabolism, exercise metabolism

2 Energy balance: energy expenditure and energy intake

3 Evaluate nutrition information for fitness and sport

4 Nutrition assessment and nutrition guidance for fitness and sport

5 Carbohydrate for fitness and performance

6 Protein for fitness and performance

7 Fat & caffeine

8 Hydration, dehydration, fluid goals, sports drinks

9 Vitamins, free radicals, phytochemicals, antioxidants

10 Minerals: calcium, iron, zinc, and chromium

11 Federal overweight and obesity guidelines, body composition

12 Body weight loss and body fat loss

13 Eating disorders and the female athlete triad

14 Muscle mass gain, strength gain, and creatine supplementation

ASSIGNMENTS

Number	Due Date	Topic
1	Sun Sept 16	Rusty's Snack Food Label & Menu
2	Sun Sept 23	Energy Expenditure
3	Sun Sept 30	Nutrition Web Page Evaluation
	Sat Oct 6	Part I: Dietary Supplement Evaluation Project
4	Sun Oct 7	Sports Nutrition Profile
5	Sun Oct 14	Carbohydrate: Recovery Snack & Meal
	Sun Oct 21	Part II: Dietary Supplement Evaluation Project
6	Sun Oct 28	Protein: 40:30:30 Menu
7	Sun Nov 4	Hydration, Sweat Rate, Sports Drinks
8	Sun Nov 11	Fitness Menu
	Sun Nov 18	No Assignment
	Sun Nov 25	No Assignment
	Sat Dec 1	Part III: Dietary Supplement Evaluation Project
	Sun Dec 2	Part IV: Dietary Supplement Evaluation Project
9	Sun Dec 9	Minimum Competitive Wt, Healthy Weight, Weight Loss
10	Fri Dec 14	Wrap-up

CLASS POLICIES

- Assignments are to be completed on an individual basis (no groups).
- The deadline for submitting assignments is midnight Sunday (US Mountain Time) of the due date.
- Late assignments will receive a 20% deduction for each day late and will only be accepted until the sample answer is posted.
- Any student found cheating or plagiarizing will receive an "F" or "O" for the course and will be reviewed by the MSU Conduct Committee.

GRADES: Earn a quality grade by doing the following:

- Make concise, substantive contributions (several per week) to online discussions.

- Submit assignments that are complete, accurate, and on time.
- Produce a complete, accurate, well-written, well-referenced evaluation of a dietary supplement (advertisement and claim) that is targeted to healthy people.

GRADE FORMAT

Item	Number	Points/Item	Points	Subtotal
Bio	1	5		5
Discussions	14	20		280
Assignments	9	20		180
Web evaluation	1	25		25
Project: Part II	1	10		10
Project Part III	1	88		88
Project Part IV	1	12		<u>12</u>
Total				600

Grades are earned based on the following percentages of total possible points in the course. No curving or other adjustments of the grades will be made. Summing the points from the discussions, assignments, and project and applying the percentages listed will below will determine the course grade.

% of Total Points Final Grade

90-100 %	A
80-89%	B
70-79%	C
60-69%	D
Below 60	F

http://btc.montana.edu/nten/fall01_cours/HDFN526.shtml

NUTRITION FOR FITNESS AND PERFORMANCE

September 10 - December 14, 2001

Exploring nutrition for physical fitness and athletic performance has never been more interesting or exciting! Food provides fluids, energy, nutrients, fiber, and phytochemicals. But what nutritional strategies are optimal? Do dietary supplements work? Using nutrition to meet the demands of physical activity is a dynamic process that combines scientific research, nutrition guidelines, and the practical aspects of fueling active people in specific situations. This course examines the latest developments that link nutrition with physical fitness, sport performance, and health promotion. Resources include a text, study guide, nutrition analysis software, peer-reviewed scientific literature, current news, and Internet resources. Participants contribute to asynchronous online discussions throughout the week. Expect to relate each week's topic to your areas of interest and expertise. A diverse group of course participants (practicing teachers in various specialties, coaches, registered dietitians, exercise and fitness leaders, and other health professionals) ensures that our discussions will be interesting, lively, and challenging discussions. Topics include energy, fluid, and nutrient needs for physical activity; nutrition around exercise (before, during, recovery); free radicals and antioxidants; dietary supplements; body composition; weight management; and disordered eating. Sport-specific nutrition strategies for endurance, team sports, and strength training are addressed. Controversial issues such as high protein, low carbohydrate diets and creatine supplementation are discussed. Internet resources are used extensively.

Assignments challenge participants to apply science-based concepts of fitness and sport nutrition to situations such as case studies, classroom activities, athletic training, and client consultations. Use nutrition analysis software to translate nutrition guidelines into actual food choices. Develop a Fitness Menu based on your personal needs. Access credible nutrition resources on the Web. Critically evaluate nutrition information. For your course project, you will select a dietary supplement and investigate a claim made for that supplement. What evidence exists to support the claim? Access the National Library of Medicine databases online. Read peer-reviewed scientific literature that examines the claim. Compare the supplement claim to the scientific evidence. Produce a written evaluation of the safety, legality, effectiveness, quality control, and potential benefits versus risks of consuming the dietary supplement.

INSTRUCTOR: Patti Steinmuller, M.S., R.D., is an Adjunct Instructor in Food and Nutrition, Department of Health and Human Development, Montana State University-Bozeman. Her M.S. degree in Kinesiology is from the University of Michigan. She is a Registered Dietitian with the American Dietetic Association and an Exercise Specialist certified by the American College of Sports Medicine. She teaches sports nutrition courses and consults on school curriculum designs that integrate nutrition education with fitness, exercise, and sport performance. Patti conducts sports nutrition workshops and presentations for teachers, coaches, and athletes and provides nutrition guidance to physically active people of all ages.

CREDIT: HDFN 526 (Nutrition), 3 graduate semester credits.

PREREQUISITES: A Bachelor's degree; one semester of college biology, human physiology, or exercise physiology, or equivalent; one semester of college chemistry or biochemistry, or equivalent; for teachers, education methods courses in health and/or health enhancement, or equivalent; a college course in nutrition is desirable; for teachers, a professional teaching certificate, and one year of teaching experience.

TARGET AUDIENCE: Teachers (science, mathematics, health enhancement, physical education, family and consumer science, and teachers with athletic coaching responsibilities) who are interested in integrating nutrition and exercise science, computer technology, and Internet resources into their teaching situations. In addition, this course serves health and fitness professionals, such as registered dietitians, exercise consultants, athletic trainers, and wellness professionals.

TIME COMMITMENT: 9 to 12 hours per week. If you are unfamiliar with this field of study and/or with telecommunications, this course may require more of your time.

TEXTBOOK/MATERIALS: NTEN has an agreement with MBS Direct to supply the textbook and software for this course. MBS Direct is a division of MBS Textbook Exchange, INC., the nation's leading wholesaler for used college textbooks. You can order the McArdle text and Diet Analysis Plus software by Internet or phone no earlier than four weeks prior to the beginning of the course from [MBS Direct](#) or 1-800-325-3252.

TEXT/PAPERS/SOFTWARE: McArdle WD, Katch FI, and Katch VL. Sports and Exercise Nutrition. Supplement which includes a study guide, resource list, and course readings.

Diet Analysis Plus, version 5.0, nutrition analysis software. Belmont: West/Wadsworth, International Thomson

Publ.2000, and ESHA Research, Salem: Nutrition Databases & Software Systems. Philadelphia: Lippincott Williams & Wilkins. 1999.

COST: Tuition is \$540 and the materials fee is \$25 for the course manual. This should be paid to NTEN at the time of registration. In addition, you are on your own to purchase the McArdle text and the current version of Diet Analysis Plus software. This text and software will cost approximately \$70 plus shipping, and can be purchased from MBS Direct or call 1-800-325-3252.

REGISTRATION DEADLINE:September 5, 2001.

SPECIAL COMPUTER REQUIREMENT: The nutrition analysis software minimum requirement(s) of each operating system are a PC running Windows 95 and Mac Plus or higher.

This course will be delivered using WebCT, an on-line course delivery tool. To see if you have the required version of Microsoft Internet Explorer or Netscape Navigator, please go to the [WebCT Browser Tune-Up](#) page.

Please note that Netscape Navigator version 6.0 is not yet recommended. Netscape Navigator 6.0 users should either plan to downgrade to version 4.7 or download and use Internet Explorer for their WebCT work.

- Download [Netscape Navigator](#)
- Download [Microsoft Internet Explorer](#)

If you need technical assistance please contact Bob Friedrich at our Help Desk by telephoning 1-800-435-1286, or

email him at robertf@montana.edu and he will be able to assist you.